IN THE CLAIMS:

1.   (**Currently Amended**) A method for verifying the design of a disk controller circuit to be incorporated into a targeted hard disk drive system, wherein the targeted hard disk drive system comprises a read/write channel and a head actuator, the method comprising the steps of:

emulating reading and writing of data in the read/write channel based upon a model of the read/write channel;

emulating a behavior of the head actuator during track seek and track following operations based upon an electromechanical model of the head actuator;

providing a disk controller design base for defining integrated circuit elements comprising the disk controller circuit;

providing a controller environment to support execution and debug of firmware for operating the disk controller circuit;

performing a plurality of disk functions according to a script, **wherein performance of at least one of the plurality of disk functions comprises the execution of the firmware, and** wherein the plurality of disk functions comprise interaction of the read/write channel model, the electromechanical model, the disk controller design base and the controller environment.

2.   (Original) The method of claim 1, wherein the plurality of disk functions are performed at a time-scaled rate, wherein the time-scaled rate maintains an accurate relative time relationship between the plurality of disk functions performed under direction of the script, and a real-time performance of the disk functions.

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3. **(Original)** The method of claim 1, wherein the plurality of disk functions are performed at a plurality of environmental limits, wherein the models and the design base are made to operate according to their predicted behavior at the environmental limits.

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